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Shoemaker 2201

(Orange County)

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REPORT

OF THE

COMMITTEE APPOINTED

BY THE

ORANGE COUNTY MEDICAL SOCIETY,

TO

ANALYZE THE WATERS

OF

CHECHUNK SPRING,

IN THE TOWN OF GOSHEN.

GOSHEN:

PLINTED BY T. B. CROWELL.

1820

CHECHUNK WATERS.

AT the Anniversary meeting of the Medical Society of Orange County, in the State of New-York, held at Goshen, on Tuesday, the 6th of July, 1819, *a specimen of water from the Chechunk Mineral Spring, which is situated three miles west of the village of Goshen, was presented to the society for inspection: and also the partial analysis of the water of said spring, made by David R. Arnell, M. D. in* 1811, *and published in the American Mineralogical Journal of the same year, was produced and read.*

Whereupon it was resolved, that a Committee of three be appointed to further analize the said water and report at the next meeting; and that

DAVID R. ARNELL, M. D. of Goshen,
DR. SAMUEL S. SEWARD, of Florida, and
DR. JAMES HERON, of Warwick,

be the said committee.

Medical Society, Montgomery, Jan. 18, 1820.

The Committee appointed further to analyze the Mineral waters of Chechunk Spring, Reported.

The Report was approved and accepted, and recommitted to the same Committee for revision and publication.

[Extract from the Minutes.

REPORT.

THE Committee appointed at the last Anniversary Meeting of this Society, for the purpose of further analysing the waters of the Chechunk Mineral Spring, Report, that they have endeavored to fulfil the duties enjoined on them, and also beg leave to offer such remarks as they may deem necessarily connected with the object of their appointment, and therefore, they think it expedient to commence with the consideration of

WATER.

This is a compound substance, composed of fifteen parts of hydrogen, and eighty five of oxygen, from which it may be formed at any time by combustion. It is of the utmost importance in the animal, vegetable & mineral kingdoms. It exists in three different states: that of a solid, as ice: that of a liquid, which is its most common form; and that of a vapour, or gas. These states depend on the degree of temperature, that of ice taking place at 32 deg. of Farenheit's Thermometer. As it passes into this state, the following phenomena are observed, 1st, a sensible production of heat—this shews the escape of caloric. 2dly, It undergoes expansion, which has been found in some instances sufficient to burst a cannon. The expansion arises partly from the extrication of the air contained in the water, which appears in bubbles, and partly from the particles of water being differently arranged, so as to occupy

a larger space. This new arrangement, is the consequence of the exercise of its affinities or laws in a low heat. The change is favored by exposure to the open air, and by the agitation of the water allowing the more rapid escape of its caloric.

On increasing the degree of heat beyond 32 deg. ice or solid water, is then changed into fluid water. During this change, a capacity is acquired to absorb sensible heat and convert it into latent heat: hence the practice of the fusion of ice, to produce additional cold for different purposes.

In this state water acts as a powerful agent all over nature. It gives fluidity to innumerable substances: it exerts a strong attraction for a variety of bodies, unites to them, or in other words, dissolves them.

In a high temperature, water takes on the properties of an air, generally termed steam or vapour. During this change, as in the last instance, a quantity of latent heat is absorbed. This conversion of water into vapour goes on at every temperature, but with different degrees of rapidity. It is very much influenced in this change by the pressure of the air. Under the common pressure of the air it takes place very rapidly at 212 deg. and then the water appears in the state called boiling. This state however, may be produced in a much less heat if the pressure of the air be lessened; as on the mountains, or by the use of the air pump. When water is converted into vapour it undergoes a prodigious expansion, and thereby produces the powerful effects observed in the various steam engines.

Water, in the state in which we procure it for domestic purposes is never pure; to have it so, it must be subjected to the process of distillation. Spring water, snow or rain water, collected at a distance from houses, and distilled to 2-3rds will be sufficient for all the purposes of pure water.—Rain water, if collected at a distance from houses is the nearest in purity, to distilled water, but that which falls near houses is often so impregnated with smoke and other impurities as to possess a strong taste and smell. In snow and rain water there are great quantities of atmospheric air, and such is called by some atmospherical water. This air is found more or less in all water, and gives to it an agreeable flavor; and the absence of it in distilled water renders the taste particular and disagreeable—the defect may be remedied by agitating the water in casks half filled.

Springs which have their origin from rain falling on the high grounds, and filtrating through the upper strata of the earth, until it encounters other strata too solid for it to penetrate, when it takes a horizontal direction, and either passes out into the lower grounds, or meets with obstructions which form a reservoir from which the water rushes through some crevice to find its level at the surface of the earth; and according to the different substances it passes through, it becomes more or less impure or impregnated. The outlets of springs uniting form runs, brooks, creeks, rivers and lakes, these are necessarily more or less infected with animal and vegetable matters which they acquire and dissolve by passing along the surface of the

earth, the increase of temperature they acquire increasing their solvent powers—Rivers running from mossy grounds are generally tinged of a brown colour by the water exercising its solvent power upon the moss or turf.

The most impure and unwholesome water is that of morasses and stagnating pools. These abound with large quantities of animal and vegetable matter, particularly with living insects in great abundance. There is an aquatic insect, which is sometimes produced in such abundance as to give a thickish consistence to the surface of the water, they are of a red colour, and this has given occasion to a vulgar opinion, that these waters were changed into blood.

The most common division of water for domestic uses is into hard and soft: water is said to be hard when it renders the surface of soap more greasy, and the small portion, which it dissolves with difficulty, instead of being diffused through the water, floats on its surface in the form of a greasy scum. This is caused by a portion of acid set loose, which seizing on the alkali of the soap causes its oily substance to be left to float on the surface. These waters are unfit for boiling vegetables in.

Mineral Waters.

The consideration of Water, containing its va-

NOTE.

In compiling this report, it is our duty to acknowledge that we have been assisted by the labors of Henry, Ewell, Nisbet, Steele, Seaman and M'Neven, and in some instances have extracted verbatim from their works. We hope this will be accepted as a sufficient apology for not giving the quotations from the respective authors, as they are so intermixed with each other and our own, that it would be difficult to seperate them.

rious impregnations, is a subject of much importance; few bodies, as already observed, are exempt from its action. It absorbs small quantities of the simple gases, and is also dissolved by them, nor can they be entirely freed from it. When water is united to and holds in solution, any particle of the mineral kingdom, in such quantity that its sensible properties are changed, it is termed a mineral water.

The properties of mineral waters depend on the particular substance held in solution by them; these are various, and according as the one or the other predominates, the waters are variously denominated.

Thus they have been divided into acidulous, saline, sulphureous and ferruginous waters. We find also that they have been divided into the cold and hot—there is no very precise limits between these, as there are springs in existence of all degrees of temperature, from 48 to 212 deg. or boiling water; but writers on this subject have said, those not sensibly exceeding 58 deg. are reckoned cold springs; and those above that temperature, hot ones.

1st. *Acidulous Waters.*

The first class are those in which the carbonic acid gas, or fixed air predominates. It is this air which is so plentifully given out during the spirituous fermentation, and it is that which gives the briskness to porter and other fermented liquors.—This air, united with the vegetable alkali is the common pot or pearl ashes, so useful in raising bread; a solution of pearl ash in sour milk being

mixed with flour may be put to bake immediately, the acid of the milk uniting with the alkali extracts the carbonic acid gas, which assisted by the expansive power of heat, penetrates and puffs up every particle of the dough. The waters of the mineral springs of Ballston and Saratoga are daily carried to considerable distances in the country around, for the purpose of raising bread, on account of their containing this air in large quantities; and where these waters are used, no other yeast or fermenting substance is necessary. It is this air also which constitutes the difference between quicklime, and chalk, marble and limestone, they being carbonates of lime, are by calcination changed into quicklime, the heat expelling therein carbonic acid. Waters impregnated with this air, are known by their briskness, and pungent acidulous taste. They boil with facility, and afford bubbles by simple agitation. They redden infusion of litmus, and give precipitates with lime water and alkaline sulphurates. This quality is, however, soon lost, the carbonic acid flies off, and they are preserved in perfection with great difficulty. All such waters, besides this predominance of carbonic acid, possess more or less of other impregnating substances.

2nd. *Saline Waters.*

The second class comprehends those waters in which a neutral salt is most conspicuous—and this they shew by acting strongly on the human body as a purge. They are to be regarded therefore as salts suspended by a natural solution. The salts most commonly formed in these waters are,

the sulphate of magnesia and the muriates of soda, lime and magnesia. To this class belong the waters of the sea, of Seltzer, of Epsom, &c.

3rd. *Sulphureous Waters.*

The 3rd class comprehends the sulphureous waters, or those which discover sulphur to the smell, and also have the property of discolouring silver. This substance is found to exist in them in two states, either in the form of sulphureted hydrogen gas, or in a solution of alkaline or calcareous sulphur. Of this kind are the sulphur springs of Saratoga and Onondaga, the yellow spring of Virginia &c.

4th. *Ferruginous Waters.*

This class is the most numerous of all the mineral waters, and in it the ferruginous principle, or iron predominates. From the manner in which the solution takes place, ferruginous waters are divided into three orders: 1st. The martial acidulous, in which there is an excess of acid, the mineral is dissolved by the carbonic acid: 2nd. The simple martial in which no excess of acidity prevails to detect this solvent; and 3rd. The sulphureous martial, in which is contained the sulphate of iron. The impregnatious of this class are not confined to the mere solution of iron, but they possess also an admixture of calcareous and saline matter, though their principal medical properties depend on their iron. Ferruginous waters are distinguished, by becoming black by admixture with infusion of galls; and the dissolving acid is thus ascertained: & if the water with infusion of galls, strikes a black before, but not after being boiled, the acid is volatile, and of course the carbonic; if the black colour ap-

pears both before and after boiling, the sulphuric acid is the solvent;—and if the water reddens infusion of litmus, there is an excess of acidity in it.

Of the sulphureous martial we have an instance in the water of Hartfell in Scotland. The waters of Saratoga and Ballston have the carbonic acid in excess; and of those in which the carbonic acid is all in a state of combination with the iron, we have the celebrated Tunbridge Wells in the county of Kent, England; and in our neighbouring state of N. J. the mineral spring of Schooley's mountain is of this kind also, and, to say the least, equal in our esteem to either, in essential qualities and medical virtues, is the water of

THE CHECHUNK MINERAL SPRING.

This spring lies about half a mile West of the Goshen and Minisink Turnpike, and three miles from the village of Goshen, its situation is solitary, romantic and beautiful. It is in the midst of a "primeval forest," of large and thick growth; through which, when your committee visited the spring, the bat was flitting at mid-day. When you enter this forest, directly you begin to descend toward a small lake or pond, about 180 paces in length, and of an oval form. The road passes along this for its whole length, when you ascend a ridge, elevated 25 feet above the level of the pond; on descending this ridge you are at the head of a swamp of spruce—directly you ascend another ridge of 30 feet elevation above the spring which is at its base. On the right, from the time you enter the wood, and far on beyond the spring is a continued ridge of high land, extending in a North di-

rection. From this ridge, the two ridges over which the road passes appear to be processes; the first commencing nearly at right angles, curves to the south, and surrounds the pond, separating it from the spruce swamp. The second, extends in a straight line nearly N. W. diverging from the principal ridge at an angle of about 45 deg. In this angle is the spring situated: Deep in a dell, surrounded by high hills on every point except the north, and by thick woods in all directions. 45 Paces from this, in a N. W. direction is another spring of pure water, issuing from the base of the hill, equal in coldness to the mineral spring. The structure of the earth is alluvial: loom, clay, gravel, and a few water-worn stones of the kind used for paving the streets of our cities, compose the hills; the vallies, a deep vegetable soil. The timber on the hills, is principally white and red oak, hickory & sugar maple; under which the arbutus uva ursi, the pyrola umbellata, and many other shrubs and plants are common: and on the west side of the pond the polygala senega is abundant.

An opinion prevails among many, that the pond, already mentioned, is the source from which the mineral spring receives its supply of water by filtration through the hills: this opinion we believe to be incorrect and unfounded, from the following considerations:

1st. The light vegetable substances, and scum, floating on the surface of the pond, concentrate at the N. W. part of it, while it is so surrounded by woods and hills, particularly on the S. E. that the currents of air cannot be the cause of this concen-

tration. We think, therefore, that this indicates an oozing of its water through the hill, in that place, into the spruce swamp, which disgorges itself by a small stream, passing in a S. W. direction, directly to the Wallkill. The spring is situated E. of N. from the pond.

2nd. The water of the pond is without any mineral impregnation, perceptible by the taste, or indicated by the tests we employed.

3rd. The water in the pond, is at all times, at or near the temperature of the circumambient atmosphere: while that of the spring, is in all seasons of the year, of a uniform temperature of 50 degrees.

4thly. By actual measurement, the surface of the water in the pond is 10 1-2 feet above the height to which the water can be raised in the curb of the spring. If the spring had its source in the pond, the water of the pond would force that of the spring up to its own level. And if the water from the pond, after penetrating into the earth, acquired its coldness by dissolving the mineral substances held in solution by the water of the spring, the coldness of the spring would be proportionably greater in winter than in summer, as the water of the pond became cooled and heated by its contact with the atmosphere. We therefore believe that the fountain or reservoir, supplying the spring with water, is in some of the adjacent high lands, so deep within the earth, that it is beyond the reach of the vicissitudes of temperature which take place on its surface. The water does not issue from the side of the hill, but rises perpendicularly through the earth.

The trees for some distance around the spring are carved full of names, initials and dates, some of which are as early as the year 1778, viz. 41 years of ago. Within that term, the place was once much frequented by valetudinarians, labouring under various diseases.

From the vague, and at times highly improper application of the water, it subsequently fell much into disuse. It was known to contain a mineral impregnation, but of what nature, was never, we believe attempted to be ascertained, until the experiments made by Dr. Arnell, in the year 1811, and published the same year in the Mineralogical Journal of New-York. Since then the place has been gradually coming into notice, and it has now become a place of much pleasurable, as well as restorative resort. More than one hundred persons are frequently at the place in a day.

Analysis of the Water.

On Wednesday, the 11th of August, at 10 o'clock in the forenoon, the Committee, according to previous arrangements, met at the spring. They took with them such re-agents as were in their possession for ascertaining the qualities of the water. The thermometer in the shade stood at 87 degrees, but on being immersed in the spring, fell almost immediately to 50. Air bubbles rose frequently, but not constantly, through the water. In the spring, and as it flows from it, the water is remarkably clear and bright, but it directly becomes turbid and deposits an ocherish sediment, which, we were informed, was collected in considerable quantities during our revolutionary war, by a me-

chanic living near the place, and used by him to good advantage as a pigment. On traversing the outlet of the spring, this sediment gradually diminishes, and at the distance of 90 paces it entirely disappears. Here the water becomes perfectly tasteless, and being mixed in equal parts with infusion of galls, no change of colour ensued, while the glass from which this mixture was thrown, on being dipped full from the spring, had the water in it, tinged of a purple colour, by the small portion of the infusion adhering to it. Wherever the water stagnates around the spring, a pellicle, of considerable lustre forms on its surface, which reflects variegated colours. The spring discharges seven quarts of water in a minute, which is equal to 105 gallons in an hour, or 40 hoghsheads per day. In taste, the water has the peculiar astringency and savour of ferruginous impregnations: to many at first it is disagreeable, and to others it is a delightful beverage.

With re-agents it gave the following results.

1. Polished iron and steel, which had been suspended in the spring for eighteen hours, were not in the least discoloured.

2. A piece of silver suspended for the same time, remained as bright as when first immersed.

3. Litmus paper was not changed in colour by the water.

4. With equal parts of lime-water it gave a white precipitate, which on the addition of muriatic acid was re-dissolved with effervescence.

5. With equal parts of an aqueous solution of indigo, no change other than discolouring the solution.

6. With tincture of turmeric, only a turbidness of the tincture.

7. With tincture of galls it gave a dark brown colour.

8. With infusion of galls it gave a deep purple immediately.

9. With tincture of cochineal it gave a blueish purple.

10. With tincture of saffron it gave a reddish brown.

11. With infusion of the bruised leaves of the hickory tree (Juglans Vulgaris) a faint dusky hue.

12. With infusion of the bruised leaves of chesnut (Fagus Castanea) a pale purple.

13. With infusion of the bruised leaves of red oak (Quercus Ruber) a dark purple.

14. With infusion of the bruised leaves of sumac (Rhus Glabrum) a dark purple.

15. With infusion of the bruised leaves of maple (Acer Rubrum) a dark purple.

16. With infusion of green tea, it gave a reddish brown with black surface.

17. With brandy it made a mixture of a dark colour.

18. With acetate of lead it gave a copious white precipitate.

19. With nitrate of silver it gave a white precipitate.

20. With Prussiate of potash, it gave no immediate change, but on adding a few drops of sulphuric acid, a violent ebullition and double elective attraction took place; the sulphuric acid seized on the potash, and formed a sulphate of potash which

remained in solution, and the Prussic acid uniting with the iron of the water, formed Prussian blue, which was precipitated.

21. With carbonate of potash it gave no change.

22. With caustic potash it gave a ferruginous deposit.

23. Carbonate of ammonia, no change.

24. With muriate of Barytes no change.

25. With expressed juice of the oxalis acetocella, a small quantity of white precipitate and blackish scurf adhering to the upper part of the vial.

26. With nitro-Prussic acid, some effervescence and evolution of gas.

27. With muriatic acid some effervescence & air bubbles.

28. With nitric acid, the same effect.

29. With sulphuric acid, considerable effervescence and evolution of gas, known by the smell to be carbonic acid; and after some days a white precipitate.

30. With oxalic do. white cloud immediately, and considerable white precipitate.

Inferences.

1st. From the third experiment we infer that there is no excess of either acid or alkali in the water.

2nd. From the facility with which a deposition takes place, we infer that the acid which holds this portion in solution is volatile, and the 4th, 29th, &c. experiments declare it to be the carbonic.

3rd. The first and twenty third experiments, prove that there is no copper.

4th. The second & nineteenth prove, that there is no sulphureted hydrogen, nor sulphur in any form.

5th. The sixth, that there is no pure or carbonated alkali, or pure earth.

6th. The seventh to seventeenth inclusive, and the twentieth, all prove the presence of iron: for the seventeenth, although liquors in themselves have no gallic acid, yet, on being kept long in casks they become completely tinctures of the wood of which the casks are made, and as this is almost exclusively oak, they may be expected to contain it in considerable quantity.

7th. The twenty-eighth, that there is no barytes.

8th. The twenty-third, that there is no sulphuric acid nor sulphate.

9th. The eighteenth and nineteenth indicate a muriate.

10th. The twenty-ninth and thirtieth prove lime to be present.

Gaseous Contents.

A gallon of the water was measured and put in bottles at the spring. The bottles were well corked and over the corks double folds of wet bladders tied. This was done by one of the committee for the purpose of further ascertaining its contents at his home: it was weighed & the weight was 8 pounds 5 1-2 ounces av. The next morning this gallon was put into a bottle the capacity of which was considerably more. Through the cork of this bottle one end of a curved tube was inserted: to the other end of the tube was attached a large empty bladder. The bottle was placed in a water bath

and the bladder immersed in a pail, which was then filled to the brim with cold water. The pail was covered so that the bladder when distended with air should not rise above the surface of the water, and a vessel put beneath the pail to receive the water that might be displaced from the pail. Distillation was commenced, and continued while any gas would rise. It was then found that 87 cubic inches of the water was displaced from the pail, and the bladder proportionably distended. The whole of the air contained in the bladder was absorbed by lime, which it precipitated from its solution in water. Thus then a gallon, or 231 cubic inches of the water contains 87 cubic inches of carbonic acid gas.

Fixed Contents.

After the gas had been, as above related, separated, the water was evaporated: and it left a residuum of 9 1-4 grs. On this four oz. of distilled water was poured, and the mixture agitated frequently for two days and then filtered.—The portion which remained on the filtre when dry weighed 5 1-4 grs. of course 4 grs. had been dissolved in the water—The filtring paper, when dry and hot, burnt with difficulty, and without sparkling—The filtered solution did not change the colour of litmus paper—it became turbid and gave a white sediment on the addition of a little oxalic acid to a small portion of it: with nitrat. argent. it gave a flaky precipitate, not soluble in nitrous acid: here we have evidences of lime and of muriatic acid in a state of combination—To the solution, oxalic acid was added while any precipitate was given: it was

then filtered, and 1 1-2 grs. of oxalate of lime remained on the filtre—The liquid after filtration changed the colour of an infusion of purple cabbage to red—carbonate of soda was added to it until the purple colour was restored, when the containing vessel was covered with crape and set by for spontaneous evaporation, it yielded 4 grs. of cubic chrystals or muriate of soda with a portion of vegetable extract.

The 5 1-2 grs. insoluble in water was treated with dilute sulphuric acid, drop by drop, while any effervesence took place, it was frequently agitated for two days and filtered, when 5 1-2 grs. of sulphate of lime remained on the filtre, and the liquid which passed it on evaporation yielded 6 grs. of sulphate of iron, with a small portion of sulphate of magnesia.

From this we may conclude the water to contain in one gallon, about

4 grs. carbonate of lime,
2 grs. carbonate of iron,
2 grs. muriate of lime,
1 gr. vegetable extract.

Carbonic acid gas 87 cubic inches, and a small portion of carbonate and muriate of magnesia.

Although we believe the above to come near the true contents of a gallon of the water, still it is our duty to acknowledge, that the means in our possession, and the time which our avocations suffered us to devote to this object, were very inadequate to a complete analysis. We are well aware that other apparatus, other processes, and other menstrua were essentially necessary for that end—

still it is our opinion that our analysis is sufficient for the purpose of ascertaining the prominent characters of the water, and of course its application to medical purposes.

The use of chalybeate waters in the cure of diseases is a subject of the first importance. Soon after taking a moderate dose, the pulse is raised in strength; the patient if previously chilly and pale, feels a certain glow, occasioned by the increased circulation, and by proper perseverence, the appetite is strengthened, and the spirits improved: & this improvement takes place in various degrees, according to the constitution of the patient. On the first use however, of chalybeate waters, with many, a number of unpleasant sensations arise, as nausea and sickness, pains of the præcordia, heaviness of the head, and feebleness over the whole body. These symptoms being merely temporary, seldom require much attention, as they yield as soon as any increased secretion takes place. The effect of all chalybeates is to blacken the fœces, which every patient should know, to prevent any groundless alarm. Another effect of their use is sometimes the production of costiveness, which should be particularly obviated by mild cathartic medicines at proper intervals. Where such waters agree, an increased discharge always comes on under their use; and this either consists in a discharge of urine, or in a very perspirable state of the surface, and in some instances a relaxed state of the bowels.

The general operation of chalybeates is to increase the power of the secretory system; and

this takes place in that gradual and uniform manner which is attended with a permanence of stimulus, that no way attends the use of other remedies. Debility & laxity of solids are the chief indications for their use, and when no mark of organic disease appears to contract the success of their operation. Thus in the various states of dyspepsia, the use of chalybeates is of eminent service, where atony forms the source of the malady. In the diseases of the female sex, they have acquired the same reputation, particularly in chlorosis, and in that debility which is often the cause of abortion.

Such is the general effect of chalybeates as powerful tonics. They are superior to most medicines of this class, but in their exhibition a proper discrimination is required. It is in weakness chiefly without local derangement, that their success is conspicuous. They also appear to possess a specific power to dissolve urinary calculi. Professor McNevin, of N. Y. in his analysis of Schooley's mountain water, recites the case of a Mr. H. who was subject to very severe paroxysms of distress from the formation of Nephritic calculi, as often as he persevered in the use of that water, accompanied with a proper quantity of moderate exercise, for the course of three or four weeks, had his urine to become quite black for some days, then it would change to its natural appearance, in an increased quantity, the water operating as a powerful diuretic, his strength improved, and he believed himself nearly, if not completely cured.

The quantity which he drank, was from fifteen

to twenty half pint tumblers full in a day.—The mineral waters of Vichy, in France, are a hot chalybeate, and do excellent service in nephritic complaints.

Particular Remarks.

It may be proper to remark in the course of this report, that it is within the knowledge of some of your committee, that those waters have been much frequented during the last season, and they have observed some cases wherein they have been useful; in cases of chronic rheumatism and dropsy much benefit has been derived from their use.

Mr. J. H. was long afflicted with the rheumatism so much so that he was unable to dress or undress himself, or to walk about but with the assistance of a crutch or cane: he had tried the usual remedies for that complaint without producing much relief—with the use of those waters, by drinking and bathing, he has been restored to perfect health, & is now able to attend to his ordinary business.

Widow J. T. was seized with the rheumatism very violently early in the summer, her hands and arms were exceedingly painful and much swelled, so that she was unable to use them: after the inflammatory symptoms were reduced by bleeding, purging &c. her disease assumed a chronic form, for which she was directed to go to the spring, she did so, and was cured by bathing and drinking the water.

Miss A. C. had been afflicted with ascites several years, by visiting the springs and drinking the water, she has experienced very great relief.

A young gentleman who was afflicted with asth-

ma, connected with hydrothorax and general hydropic swelling, by drinking the waters has been entirely cured.

Several other instances of their good effects might be noticed in some other diseases, particularly in calciclous diseases of the urinary passages, in dyspeptic complaints, and some disorders of the skin, where benefits have been produced, and in some instances cures have been performed, but as all their effect must and does depend upon their combination of iron with other matters, we only offer these cases as proofs of the fact that these waters do possess such chalybeate combinations as our analysis shews them to contain.

From the facility with which the water of the Chechunk Spring parts with its carbonates, it will be obvious to every one, that, in order to have the proper medical effects of the water, it will be necessary to use it at the fountain.

Nothing can be more absurd than the idea that governs many who visit medical springs for the restoration of their health, that they are to recover in proportion to the quantity of the water they drink; for although persons in health may, and they frequently do, swallow down enormous quantities with impunity, it by no means follows, that those whose stomachs are enfeebled by disease can take the same quantity with the same effect. Stomachs of this description, most frequently reject the too copious draught, and save the system from the evil consequences that would otherwise inevitably follow; but when it happens to be retained, the result is indeed distressing; the pulse becomes quick

and feeble, the extremities cold, the bowels swollen and painful, and the whole train of nervous affections alarmingly increased, and should the unfortunate sufferer survive the effects of his imprudence, it is only to a renewal of his worst apprehensions, from a loss of confidence in what he most probably considered his last resort. We therefore deem it adviseable, for all who think of using the water in cases of disease, to have the advice of their physician, respecting the propriety of using it at all; and if deemed proper, of the quantity and manner in which it ought to be used.

As the complaints in which waters of this kind are most likely to prove beneficial, are those of the kind termed chronic; and as the salutary effects of these waters are not immediate, but gradual; so, a patient and persevering use of them, will, in most cases be necessary to test their efficacy.

All which is respectfully submitted.

DAVID R. ARNELL.
SAMUEL S. SEWARD.
JAMES HERON.